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AUTHOR Ishigaki, Emiko Hannah
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ABSTRACT

Results of a survey of grade school and junior high school students suggest that Japan is now caught up in a TV game fad called Family Computer (Fami-Com). Fami-Com is a household electric machine for video games that allows players to use more than 100 currently marketed software products. Since its introduction in 1983, the popularity of the product has continuously grown. Books revealing how to score high on Fami-Com games are best sellers. More than 100 magazines have featured articles on how to master Fami-Com games. The content of more than 10 magazines focuses exclusively on the game machine. Additionally, the education industry has begun to develop study materials related to the family computer. Provided in this report are findings of surveys of (1) regional and age differences in ownership of the game, (2) ownership among kindergarten children, and (3) parent attitudes about problems and possibilities associated with the game. Also provided are discussions of characteristics of the game; characteristics of children's play in Japan today; and the social, psychological, and physical influences of the game. These discussions are followed by an exploration of problems associated with computer play, including addiction, absence of original experiences, altered thought processes, and solitary play. References are included (in Japanese). (RH)

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The Children of Computer Generation

An Analysis of The Family Computer Fad in Japan

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Dr.EMIKO HANNAH ISHIGAKI
DEAN, PROFESSOR OF
EARLY CHILDHOOD EDUCATION(Ph.D.)
SEIWA COLLEGE,GRADUATE SCHOOL
NISHINOMIYA
JAPAN

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THE CHILDREN OF COMPUTER GENERATION
--AN ANALYSIS ON THE FAMILY COMPUTER FAD IN JAPAN--

Dr. Emiko Hannah ISHIGAKI
Seiwa College & Graduate School
Nishinomiya, JAPAN

The Japanese children are now caught up in the Family Computer(Fami-com) Fad. A family computer is a household electric machine for video games, consisting of the machine body(hardware) and the game cassettes(software). The body is connected with TV through the VHF terminal to play the games. First of all, the present situation of the computer play is to be stated.

Its social, psychological and physical influences are also examined. Then, the characteristics of children's play in Japan today are shown and analized. Four points of view are presented as the problems concerning the computer play.

(1) The addiction to the family computer games
(2) The lack of original experiences
(3) The way of thinking affected by computer
(4) The group of children playing alone

The family computer plays a big role in children's play now. Adults should not criticize it in vain. It would be necessary to give children the opportunities to know new different worlds including the computers, by giving them more space and time for natural and free play, of which they lack today.

For the details, please look at the materials which are to be distributed at the session.

The Children of Computer Generation

An Analysis of The Family Computer Fad in Japan

Dr.Emiko Hannah Ishigaki

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1. Introduction

Japan is now caught up in the TV game fad called a family computer. The people of wide range and of all the ages as well as the junior and senior high school students are affected by this TV game. The shipment of the game has reportedly exceeded 7,500,000 now, at which we are surprised when we look at the total number of the Japanese grade school children (11,500,000) and that of the household with parents and unmarried children (15,600,000). At the same time, the goods related to the TV game are also selling very well.

The fad was instigated by a toy company in 1983 when they started to sell the product called a family computer. The Fami-Com, an abbreviation for family computer, sold like crazy and it soon became out of stock. Why did it sell like this? Because it made the TV game more diverse and exciting than its predecesors. The TV game is so called one-hard-multi-soft and with the various kinds of casstte, one can enjoy the game one after another.

According to the survey for the grade school and the junior high school students conducted by a centain Japanese life insurance company, the most common answer among both male and female students against the question, "In what kind of play are you interested?", was the TV game. The ratio was 43% for males and 24% for females. The figure is much greater than those that came after the TV game. Then, why is the TV game so popular? Is it only the children that account for the fad? Aren't the parents also accounting for it by buying the children the game? Then, why do the parents buy the children such an expensive toy?

According to the opinion poll on the TV game given to the parents by some bank in Japan, 51% answered that they bought it to acquire the knowledge of computer. 21% bought it because the children wanted it. 6% said that the children needed it for their study. 2% bought it just because it had become cheap. The parents surveyed had the children enrolled at secondary school. They seem to be so concerned with the recent development of high technology that they do not want their children to fall behind the time.

Another reason for the fad is that the today's children in cities are not given enough space for their play grounds. In addition, they have to go to the out-of-school lessons or Okeiko-Goto (This is a special cultural training attended by children after school. In Japan, even pre-school children are attending trainnings of this kind.) and their time is occupied by homeworks so that they only have a limited time for themselves. They are now engaged in short-time plays such as the TV game, which they can play just by themselves, and are thus attributing to the fad.

The recent emergence of a magnetic disk drive is making the Fami-Com more like an advanced computer system. It is going to determine whether the Fami-Com would just end up as games or it be used by all the family members as a communication media.

2. What Is The Fami-Com?

We are going to see a brief description of what the Fami-Com is all about.

The Fami-Com is the abbreviation for the family computer, which is a household electric machine for video games, developed originally by Nintendo Toy Company and was started to be on the market in July 1983.

The children and the company call this "a body". The body is connected with a TV set through VHF terminal to play the games, with the game cassette (software) inserted into it. A push on the starting button brings out a game world on a picture tube.

FIGURE

The body can not do anything without softwares. It is just like a video deck that carries the images recorded in the video

tape to the picture tube of TV. The differnce between the two is that the body has two controllers, on each of which there are in addition to the start button , two buttons and a cross shape button indicating the four directions; up, down, right and left. With these buttons, one can move the hero on the picture tube just as he or she wants it.

The body costs ¥ 14,800 ($ 95). The efficiency of the game machine and the quality of the softwares are quite good compared with the games by a personal computer. Those are of the game machines of bussiness use at the game centers. The product hit the world record in the number of computer equipments that sold as a single model.

In the world of toy business, any hit product is said to last only a year and a half or three years at the longest. However, the Fami-Com smashed this generally accepted idea and for the past three years and a half, the popularity has never ceased to grow. The industry has never had a product like this.

The main body is the product of Nintendo alone but the company has contracts with twenty other companies for the softwares. More than 100 softwares of various kinds are already on the market.

The sports games (e.g.soccer and tennis), Mah-jonng, Shogi (the Japanese equivalent of Chess) and Othello are also available for adults. In the sports games, the players on the screen are manipulated through the controllers and made to hit or kick the ball. In the other games, the face of a board appears on the screen and the positions of the pieces or the selections of the tiles are determined by operating the controller.

In addition to those games, there is a war game in which a combat plane shoots missiles to bomb the enemy's base. The screen changes in various patterns according to the movement of the combat plane. The enemy, on the other hand, make their attack on the plane to shoot it down. With a hit on a military target of the enemy, some points are added.

Of all these games, the one with adventure flavor is likely to be more popular rather than simple war games. "Super Mario Brothers", 3,000,000 of which have been sold since its appearence in Fall 1985, is one of these adventure type game.

The flood of these softwares into the Fami-Com market extended the need of the main body and triggered so called the second Fami-Com shock.

In the publishing business, the number of publication is increasing every year while the sales are not. The number of best seller is also decreasing.

But those books on how to get high points in Fami-Com games are selling like crazy. In fact, the best seller of 1985 was "How to conquor Super Mario Brothers"(¥390). Published in the middle of October, 700,000 of its copy were sold out in only two months to make the sudden emergence of the book the best seller of the year.

Toward the year's end, more than 50 magazines have started to feature the strategy to master the Fami-Com games. The number has jumped to be more than 100 by now.

The publishers in slump had to publish something selling and they had no choice but to go for the Fami-Com fad, which as anyone could see it would certainly bring about profits.

Furthermore, more than 10 magazines have appeared only for

this game machine, telling the abnormality of this fad.

In addition to the games, the education industry has also embarked on the development of study materials by using a visualized systen on the family computer.

3. The Present Situation of The Computer Play

Let's look at how the children are relating to the Fami-Com.

① The Regional Difference

In May 1986, a' centain Japanese broadcasting company surveyed the difference between the grade school children in Tokyo metropolitan area and those in a rural area of Gifu prefecture.

45 students of 6th' grade at the grade school in Megro ward were asked several questions. It was found out that 45% of them possessed the TV game. The ratio for the male students reached up to 65%. The average number of the cassettes owned by them was 10. The average amount of time spent for the play was 45 minutes for the male students and 19 minnutes for the female students. Those who play the game every day were spending 1 hour and 40 minutes for it. There were some students who were not using the game they possessed. Those who play it every day reflect the actual stuation.

In the rural area of Gifu, they buy things according to what others buy. For instance, if someone buys a car, all the neighbours are ashamed not to possess the same. Here, the fad came more quickly than in city area and had already gone at the time of the survey. 40 students of 5th and 6th grade were surveyed. 63% of them possessed the TV game and the ration went up to 88% for the male students. The average number of the cassettes was 7.6. The time spent for it was 33 minutes for the male students and 16 minutes for the female students.

Almost all of the 6th grade students were not playing their games any more, attributing to the less average time. Those who play it every day were spending 2 hours and 10 minutes for it.

According to the investigation conducted in February 1986 by the Reserach Institute of Education in Aomori prefecture against 3,000 people concerning the possession of the TV game and the children's life style, 61% of all the grade school boys surveyed owned the Fami-Com and 31% of all the grade school girls had it. Thus, 46% of all the grade school children possessed the Fami-Com. There seems to be no distinct difference between city areas and rural areas. The children also owned many cassettes and were exchanging them one another. 33% of the children were spending more than 3 hours a day for the play and 53% of them were 1 to 2 hours a day for it.

Similar investigations were carried out in almost all the prefectures throughout Japan. According to these, there do not seem to be much difference by regions. However, about 70% of the children in city area possessed the game while it was possessed only by 50% of the children in rural area.

② The Age Difference

The Fami-Com is played by wide variety of people ranging from grade school and junior high school children to adults.

The investigation name "what do today's children possess?", conducted by a certain bank in Japan, almost half the children owned the TV game.

The following is the result of the survey conducted in March 1985 in Tokyo, Nagoya and Osaka against 4,000 housewives with children at secondary educational institutions. (841 of valid recovery)

The grade school male student; 48.6%

The grade school female student; 21.9%

The junior high male student; 49.4%

The junior high female student; 16.5%

The senior high male student; 25.3%

The senior high female student; 9.8%

The average is 29.7%, which is more than that of the previous year by 9.1%.

A similar survey was conducted in 1986. 67% of the grade school and junior high school children owned the TV game while 39% of the high school student owned it. On the whole, 49% of the secondary school children possessed the TV game. In comparison to the figure of the previous year, this is a remarkable increase.

The grade school and junior high school children are the ones who are the most actively involved in the Fami-Com.

According to the investigation conducted in January 1986 at a certain elementary school in Tokyo metropolitan area, more than 50% of all the student at any grade possessed the Fami-Com. The highest figure, 73% was achieved by the 4th grade. Even 53% of the 1st graders possessed the game machine. In addition more than 90% of all the children in the school had had an experience with the Fami-com. And amazingly, 99% of the 4th graders had had this experience already.

A survey was conducted against 551 students of 2nd, 4th, 5th and 6th grades at 5 different grade schools in Nakano ward of Tokyo, Nagoya city, Takatsuki city of Osaka, Komatsu city of Ishikawa prefecture and Okayama city. 52% of the second grader possessed the game. The figure increased with the grade and 84%

of the 6th grader were the owner of it.

As it was found out, the figure varies. We can not determine which age category is the most prone to the Fami-com. But it is absolutely certain that the Fami-com plays a big role for any children at any grade.

Although many 1st graders are already involved in the Fami-Com, even quite a few preschool children are found standing with eager eyes in front of the Fami-Com at the toy sections of the department stores.

The magazines for preschool children are also putting up articles on the Fami-Com. The Fami-Com fad seems to have penetrated into the age category of preschool children.

③ The Case on Young Children

The investigations were carried out at two different kindergarten in the suburbs of Osaka.

The questionnaire papers were distributed at N public kindergarten in Toyonaka city and at F private kindergarten in Kawanishi city. The teachers at both schools were asked to give the questionnaire papers to the children who took them to their home for their parents to fill out the questions.

(1) The period

N kindergarten	distributed	in June 17, 1986
	collected	in June 19, 1986
F kindergarten	distributed	in July 14, 1986
	collected	in July 18, 1986

(2) The survey of each kindergarten

(a) N public kindergarten of Toyonaka city has 176 children of 5 years old, who are divided into 5 classes. The school includes the time called "Wanpaku(Mischief) Time" in the curriculam in order to promote children's physical strength.

Many children live in the high rising developments around the school building. They have two school buses which carry the children living relatively far from the school.

Since N kindergarten is a public shool, there is no curriculum of computer education nor special education for gifted children.

(b) F private kindergarted of Kawanishi city has 184 children divided into 7 classes, 3 for the 5 years old, 3 for the 4 years old and 1 for the 3 years old.

The school is located in a residential area of the city so that it is surrounded by houses. Since there is no high rising development around the school building, the environment is richer in nature than N kindergarten.

The unique currirulum includes the individual work at the corners. Each child choose one corner to work on various kinds of learnings; sense, language, number, paintings, carpentry, handycrafts, musical bell, cooking and puzzles. They actually use real materials to make dishes. Particulary, they make use of computer to learn about numbers.

(3) The Numbers

(N kindergarten)

	Total	Male	Female
The No.	176	92	84
Collected	136	65	71
The Ratio	77%	70.7%	80.5%

(F kindergarten)

	Total	Male	Female
5 ye.old	90	54	36
Collected	58	36	22
The Ratio	64.4%	66.7%	61.1%
4 ye.old	79	38	41
Collected	49	25	24
The Ratio	62%	65.9%	58.5%
3 ye.old	15	6	9
Collected	9	2	7
The Ratio	60%	33.3%	77.8%

Do you own the body of the Fami-Com?

(N kindergarten)

Male			Female		
Yes	26	40.0%	Yes	23	32.0%
No	37	56.9%	No	48	67.0%
Else	2	3.1%	Else	1	1.0%

(F kindergarten)

Male			Female		
Yes	21	58.3%	Yes	8	36.4%
No	15	41.7%	No	14	63.6%
Else	0	0.0%	Else	0	0.0%

How much time do you spend for the Fami-Com every day?

(N kindergarten)

Male			Female		
0 min.	41	63.1%	0 min.	66	92.4%
30 min.	6	9.2%	30 min.	5	7.0%
1 hour	10	15.4%	1 hour	1	1.4%
30 min.to 1 h.	4	6.3%			
2 hours	2	3.1%			
1h.to 2h.	1	1.5%			

(F kindergarten)

Male			Female		
0 min.	12	33.3%	0 min.	18	81.8%
30 min.	7	19.4%	30 min.	4	18.2%
30 min.to 1h.	1	2.8%			
1 hour	7	19.4%			
1h.to 2h.	1	2.8%			
2 hours	4	11.1%			
Else	4	11.1%			

Relatively many children in both schools possessed the Fami-Com, and in the case of F kindergarten, more than half the children had it. But when we look at the time spent for playing it, it is found out that many are not actually using it at all or spend less than one hour at the most. This would probably because in many cases the machine belongs to someone else at home. Or the parents may be inflicting a regulation on the use of the Fami-Com at home so that the children are not allowed to spend long hours in front of the machine.

Among the softwares, Super Mario Brothers was the most popular at both schools, followed by various kinds of other games.

In general, not all the parents are against the Fami-Com. Their opinions vary by the stuations they are in. Let us look at them.

The parents who own the game have the following problems.
"We do not particulary permit the game in our home. But those who think it all right to have the game in their home should be aware that the children without this machine go to their friends house and play the game longer than the owner. As a result, they are not spending their time outside. Even when children are not home, it does not always mean that they are playing outside. We are bothered by those children who come to our house just to play the game. " Or, "It would certainly be nice to have little guests at home. But their purpose is the Fami-Com.
They do not communicate much one another. They always stay inside of the house." These are the opinions by the mothers who have the Fami-Com at home. It is not very easy to grasp the children's activities once they go outside. But we should not compromise here. The parents who do not have the Fami-Com at home should inflict upon their children the regulation of the

time they are allowed to spend to play the game at their friend's house. The parents who do have the game at home have the resposibility to restrict the time spent on the game.

Those who do not possess the Fami-Com have the following opinions. "The children without the Fami-Com are excluded from the group with the game. They can hardly play with their friends at the kindergarten." "The parents buy their children the Fami- Com because they do not want their children to be excluded from others. But if the parents really think the game unnecessary, they should not swayed by the circumustances." Indeed, if they buy their children the game machine out of pity, they spoil their children , which will later turn out to be more pity. Therefore they should decide by themselves whether or not the machine is to be purchased.

There are some opinions concerning the play. "Children are not playing outside as much as they used to be. Even when they are playing outside, they are very likely to come up to a consensus to go to someone's house. At the house, one of them suggest the Fami-Com and the others come around the machine at once. They are no more thinking of going outside. Sometime ago, the out side play was first and the inside second but it has become the other way round these days. They go outside only when they get bored of the Fami-Com. Even though the parents tell them to go outside, they just can not go to a park where they can find no one else. They would go to their friend's house to play the Fami-Com there. It would be better that the families should get together to come up with regulations upon their children." "It is desirable that the children, when young, come into contact with the nature. The emeregence of the Fami-Com has killed the original purpose of children's play."

As it is remarked in the opinions, children are made to play outside. But they just cannot play in a desolate park and are likely to stay inside of the house, thus being involved into the vicious circle. The children's play should not lose its original purpose. Therefore it is all the more important that the neighbours cooperate one another to come up with regulations to bring about good consequences.

On the other hand, there are parents who admit the Fami-Com in an affirmative way. "The family used to play cards together and the Fami-Com is now taking its place. They enjoy playing it together as a family." "The Fami-Com is a way for friends to get together. It does no harm if played inside of the house."
"We cannot say that the Fami-Com is a vice. It gives children opportunities to find friends. Whether it does good or not depends on the way you use it." Those parents regard the Fami-Com as one of the many plays and as an instrument of the communication between the children and the parents.

Lastly, let us look at some opinions, if not criticism, toward the parents who buy the Fami-Com for their children.
"The parents are only spoiling the children. The children will come to think of some other way of playing if they are not given the game." "There are many concerns as to the harms the Fami-Com would do to the children. But it is wrong just to deplore when the children, under the surpervision of their parents, are already given this expensive toy. If the children play the game without listening to their parents, the responsibility lies in the parents who brought them up that way. If they keep the rule, there is nothing wrong with the Fami-Com." The last one is a strict opinion toward parents. Indeed, the discipline the parents adopted in bringing up their children would certainly

affect the way the Fami-Com is used. The parents' attitude toward their children would be also important. In addition to the worry over the little attentions paid by the children toward their parents during their Fami-Com activity, it will be necessary to wonder if there is something more deep in this problem. Children change according to the way they are disciplined by their parents.

④ The Characteristics of The Play

As it has already been seen, almost all the children have had at least some experience with the Fami-Com. In general they do not play the game alone but they get together at friend's house to play it. They would start to frequent some particular house called "Tamariba" or the gathering place. The characteristics of the gathering place are the absence of the parents during the day time and the variety of cassettes available. Among them are the preschool children and the first graders.

As for the pleasure of the Fami-Com, its purpose is to obtain the highest score for to let the character proceed to the furthest stage. The latter one is called by children "Menkuri" or the face clearing.

However, in many cases they soon come to lose their interest in getting points and some of them become successful in clearing all the faces. Then, they get bored of repeating the play prescribed in the catalog.

But the frenzy instigated by the media and the game makers resulted in an unique way of enjoying the game in the Fami-Com. This is the one called "Ura-Waza". (Ura means the reverse and Waza the technic.) Ura-Waza is an interesting phenemenon that occurs only when the game is played in a special way. Then came

up the following diagram. The game makers prepare a lot of Ura-Wazas in their products. ➡ The media trys to find them and appeal to the children to find more. ➡ The children try hard to make a discovery and when they succeed in it, they send it to the publishers. ➡ The publishers adopt it, publish it and give the children prize. Or, the children put more energy in finding out Ura-Wazas. ➡ They boast their findings to their friends.

They find their pleasure of the Fami-Com in rvealing secrets rather than playing the prescribed games. They are now searching for their own Ura-Waza. Its discovery will give them honor among their friends at once. It may be the exchange of the informations among the friends that is stimulating the Fami-Com fad.

4. The Social, Psychological and Physical Influences

The infiltration of the Fami-Com into the children's life must be affecting them in various ways. Among children is a group called a Fami-Com group, who come to their gathering place after school with their game machines and spend the rest of the day playing the games. Those children who own many games or who obtain high scores in the games are their leaders. In order to keep the membership in the group, it is necessary to bring new games and get high scores.

Those who do not possess the Fami-Com are naturally excluded from the group. In fact, some little frictions among the children concerning the exchange of cassettes have resulted into bullying. The Fami-Com fad has been going on so long that it is now affecting the children psychologically.

There are many children who possess more than ten games by using up all of their allowances and the new year's gift money.

They easily get tired of one game and go for various games one after another.

The cost of ten games and the main body is about $450. The Fami-Com is their only concern and they spend all of their money for it. If they do not have enough funds to buy what they want, they try their hardest to make the parents buy it for them. The Fami-Com children are spending much more money than any other children.

The parents are very much worried about their children's physical conditions, especially the eyes. All the Fami-Com children are at least once told by their parents worrying about the deterioration of their eye sight to stop the game. Then, is the Fami-Com really doing any harm to their eye sight?

A resarch on the effects of the Fami-Com on children's eye sight was reported for the first time at the 90th meeting of ophthalmologist held at Yokkaichi city, Mie prefecture.

In his presentation, Mr.Shichirou Sano pointed out that the Fami-Com play of less than 2 hours does not matter so much but that if the children play the game more than 2 hours every day, then medical problems would arise.

Mr.Sano conducted his experiment in the following way. He asked 3 children to play the Fami-Com more than 3 hours and 2 children to watch TV. Their eyes were checked every hour. All the children were 10 years old and had an eye sight of at least 1.5. There were 6 itens in the check list. 2 of them were on the eye fatigue.

One was the test on the balance of the muscles that move the eye balls around. Another one was the test of the time needed for focusing when the eyes catch the sights both in long distance and short distance. In the case of adult, more time is

needed when the eyes are tired.

After 3 hours of play the eye sight did not deteriorated much but the muscle had lost the balance a little bit. Especially after 2 hours, the eyes seem to start to deteriorate.

Notably, the Fami-Com children had a different balance of the muscle from those who watched TV. The play of the game in which the eyes have to follow those fast movements tired out the muscles.

The change is easily modified in a day if one plays it only once in a while but if he or she plays it more than 3 hours every day, the small changes eveutually pile up to give serious effects on the eyes.

The children are taking rest occasionally when they play the game at home. Roughly speaking, 2 hours of play will not cause a serious problems. However, there are some children who do play it more than 3 hours every day. The parents should give them a regulation.

There are a lot of pros and cons on the Fami-Com at the meeting of the parents and the teachers. But the adults should not judge the matter by their own sense of value. They should always be thinking of their children.

5. The Characteristics of Children's Play in Japan Today

When the Fami-Com fad was becoming the social problem, the parents raised various opinions. They deplored that their children had stopped playing outside.

But were they playing outside before the fad came out? It was quite a long time ago when people started to say that their children would not go outside.

In the middle of 1970's when Okeiko-Goto and Cram schools

were becoming popular, people said the same. Okeiko-Goto and Cram schools were considered to be the cause. In 1980's when the Game watch has become the fad, it was called the enemy who kept children from going outside. TV and comic magazine were their long time enemies, too. For the past 10 years, there appeared many things that were considered to be causing children not to go outside. And, the Fami-Com has become their latest enemy.

They are putting the cart before the horse. It should be that the Fami-Com fad' appeared because children stopped going outside. Then, why did they lose their interest in playing outside? Let us consider the aspects of recent children's play.

First of all, there are less spaces for play grounds. According to the questionaire against the grade school and junior high school students conducted by a Japanese life insurance company, the first two places where they spend their time for playing were their own house and their friends' house. The neighbourhood of the home was placed third. 70% of them chose one of these three.

There used to be many vacant lots best suited for children's play, which, along with the urbanization, are now occupied by factories, buildings, apartments and high rising developments. The roads that used to serve as good play grounds for children are now dominated by dangerous automobiles. Children lost the place where they can run around.

Cities are building the children's park and the children's house for their play grounds. But in many of these parks and public facilities, there are only a few tools and active plays such as a ball play are not allowed there. At the children's

house, they play under the supervision of adults. The children are not actually given places where they can play on their own.

A children's playing space is not something given by adults but the one they make up themselves. Those vacant lots where they used to play while accompanied by a little danger are now disappearing. Instead there are more play grounds based on the idea of adults and controled by adults.

The children living in high rising developments are using the elevators on their way to and back from school. They come to find it too much trouble to go out. Instead they talk to their friends for a long time on the phone.

There is a concern about the discipline children would receive when they play in high rising developments. They are not allowed to run and jump. They have no other choice but watching TV, reading comic magazine and being absorbed into playing the Fami-Com.

Secondly, they do not have much time for playing. Children are very busy today. They go to their Okeiko-Goto after school. They go to cram schools, sports clubs and piano lessons. They can hardly take their time out for playing. According to the investigation conducted by the above life insurance company, the average time children spend for playing during week days was 2 hours and 11 minutes. But they are not playing for this long at a time. Their playing time is partitioned into several intervals of 20 to 30 minutes. After school they play only about 20 to 30 minutes and then go to Okeiko-Goto.

Recently, some children are found playing at night. They are probably on their way home from cram schools. Those busy children can have their own time for only a few hours at night.

The abnormal education frenzy of today is making it a common

sense to send school children in the lowere grades to cram schools. There are now some cram schools that accept even 2 years old children. Some kindergartens are advertising themselves as the schools teaching children English and Chinese characters.
The parents on the other hand send their children to those kindergartens because they think it is advantageous for children to start learning those subjects as early as posibble. But the children are losing their playing time.

Thirdly, they have few friends to play with. We have the following results according to the survey against 7,113 grade school children conducted by Fukui prefecture teacher's union.
They were asked a question if they play a lot with their friends and only one third answered affirmatively. 12.2% said that they do not. The trend is especially stronger among girls and the higer graders. 865 children who answered negatively were again asked the reason for it. 66% said that they either had to go to cram schools or Okeiko-Goto or were participating in some sports clubs. No wonder they can not form a group to play. 11% of them said that they do not have friends to play with. The ratio was higher among the lower graders. They want to play with someone and yet they cannot find their partners. This may be related to the participation of so many children in Okeiko-Goto.

Fourth, the trend of play is no more produced by children themselves. Many of the trends of children's play used to be produced by children themselves and they did not go beyond a certain extent. A Japanese traditional play such as Beigoma(a Japanese top), Menko(a piece of cardboard used in a children's game in which a thick card is slapped down on the ground to overturn a card of one's opponents) or, in the case of girl, Otedama(a beanbag), Ayatori(a play at cat's cradle) would spread

throughout the whole town right away once it was played by someone. A little thing triggered a fad. The change of seasons also affected the trend. The children would make toys themselves.

However, since the children's life style became an object of bussiness, toys has ceased to be something to make but has become something to buy at the stores. And today when the toy companies are advertising their products on TV to stimulate the children's interest, the trend of children's play is produced by the informations and the toys advertised on TV. The machines designed for children's play make fads in the market and enrich the industrial world. The toy business world would do anything for that purpose. The children's plays are under their control.

There are many problems entangled one another to affect the children's play; social problems, urbanization problems, educational problems and family problems.

The change of children is the reflection of adults' society. The children ceased to go outside. The adults may be attributing it to the Fami-Com fad. If they think that they can solve the problem by taking the game away from children, they are only decieving themselves.

6. The Problems Concerning The Computer Play

① The Addiction to The Family Computer Games

A psychiatrist Keigo Okonogi points out the following as a prerequisite for play; "For a play to be possible, a certain kind of stoicism and surrealism which are essentially different from immediate profits or greed is necessary."

It is the ability to deny the reality that is needed for one

to be absorbed in playing. Whatever pressure there is, one's personality must be strong enough to deny the reality once he or she is going to start playing.

However, one can not always deny the reality alone. On the other hand, there are some conditions that trigger various kinds of psychological effects on one's thinking to deny the reality.

In addition to those conditions on the side of the one involved, there should be stimulating and attracting points from outside that prombte one's attitude to deny the reality.
The stronter those stimulations are and the more possibility there is to satisfy one's desire, the more likely he or she is to be absorbed into the world of the reality negation. And the more possibility there is for one to satisfy his desire through those stimulations, the more actively the world of play demonstrate the psychological effects on him.

Among those that stimulate playing and produce the reality negation are sports and games. And here we have our Fami-Com as something that gives us so much stimulations that we forget about the reality.

Mr.Shinnosuke Okudaira of Toho University Medical School investigated the brain waves of those playing the Fami-Com. It was found out that their frequency is a very low θ wave. θ wave is the brain wave of those in light sleep. It shows a certain kind of strong intoxication. All those who were investigated showed this wave.

It is expected that there are going to be more discoveries of stimulations in the Fami-Com that lead to the reality negation.
In other words, the Fami-Com gives one a comfortable feeling when the player experiences the aggresiveness, the excitement,

the adventure, the frustration and the various kinds of emotions and finally succeeds in holding it under his control, while providing the children good opportunities of mischivous acts and fightings that used to be performed in vacant lots but now are hindered by Okeiko-Goto.

For the Fami-Com to be a play, it is necessary for the player to be ready to stop it and come back to the reality whenever the situation requires it. Adults' spiritual life is not affected so much by the Fami-Com. The play ia a temporary matter for them and they are always ready to come back to the reality. But if children as young as kindergarten and grade school students are absorbed in the play, can they selfcontrol themselves like adults?

Mr.Okonogi points out that a play requires the player to have a strong personality and selfcontrol to restrain himself from being addicted to it as well as from a desire to be absorbed in it. But if one has not developed the selfcontrol yet and is absorbed in such a strong intoxication as the Fami-Com, it is afraid that he easily gets addicted to it. There shoul be a strict regulation on the use of the play.

② The Lack of Original Experiences

The Fami-Com brings about a self consistent world. The game on the screen is a completely different world from the reality. The children who play it are separated from outside world and after the game the experience of the game has nothing to do with the outside world.

It is afraid that the cihldren's interest is confined in the inside of the computer and that they fail to recognize the real world they live in. Especially, there is more concern about

this in the air conditioned buildings where one does not care about the weather, the temperature and the time. This is called the lack of original experiences pointed out as one of the many problems facing a man of today. The Fami-Com might be accelerating this trend.

③ The Way of Thinking Affected by Computer

The Fami-Com is completely a digital machine. TV brings about people and natural landscape. But what is on the screen on the Fami-Com is the simulated image based on the binary theoryof computer. It sometimes takes a form of man or animal but they are not real at all. The children take positive attitude toward the mastery of the game based on the computer theory. Their way of thinking is becoming binary.

Although there are various kinds of Fami-Com game, most of them are the games between an enemy and the player. This really is an experience of rough emotion in which one can experience a comfortable feeling not found in daily life. However, it is different from a real life nor a human relationship. It may be producing a new human race who do not understand those delicate sentiments of human being.

④ The Group of Children Playing Alone

The parents who approve the Fami-Com point out that their children got friends through the game. The pruchase of the Fami-Com certainly brings about new friends but their attitude of play looks somewhat peculiar. Sometimes 3 or 4 children get together to come up with various ideas to find Ura-Waza. But in most cases only one child play the game while the others are waiting their turn by reading comic magazines.

In the traditional play like Ishikeri(hopscotch) or Gomutobi (elastic band jump), children would wait for their turn, too. But even when they were waiting, they were playing a role of umpire. Even though they could not practice while waiting because they share the same ground, their stones restricted the play of others so that they were still participating in the game.

In the case of the Fami-Com, deception does not work at all except pushing the start button immediately after the game becomes over. The computer plays a role of umpire. Unlike in the case of Ishikeri, there is no way for the waiting children to interfere with the controler. It seems that the Fami-Com is more like a solitary play than a group oriented one. However, that does not mean that the Fami-Com is worthless.

Ishikeri is not a game for one player. But the Fami-Com is. One can enjoy playing it just by himself. Most of today's children possess both the body and the softwares at home. And yet they want to play the Fami-Com with friends. They wait for their turn while reading comic magazines probably because they just want to stay with others.

Says Mr.Jiro Saito, " For children the Fami-Com may be nothing but a good excuse to get together. But the Fami-Com is designed for only one player to enjoy the game. The relationship among children must be so much in danger that the paradox like this is commonly accepted. Just on the verge of collaps, the Fami-Com may be teaching children the best way to keep company with friends and how to form a group. "

7. Conclusion

As we have seen it, it is useless to criticize the children playing the Fami-Com without giving coisideration to the problems of the society. The life pattern of today's children is not caused by the Fami-Com but is the result of the situations in which they could not help but long for something like the Fami-Com.

Today's children in Japan have to manualize the activities after school to play soccer, practice piano and study. The Fami-Com came in between those manualized schedules and has created a new trend of culture. The children are cornered into the situation in which the Fami-Com is the only way for them to enjoy their time.

But the adults lament over the change of children by refering to the way they are. When they look at their children playing with the Fami-Com, they would say, "We used to play more in outside. The children of old time were brave." However, the change of children is the reflection of the adult's society. The children cannot play outside because the adults deprived them of the space for playing.

The Fami-Com fad is certainly going down but something else will appear to take its place. The adults will be again complaining about it.

But even though what the children are doing may seem strange to the adults, they are doing it as a matter of course because they live in a different age. Therefore, it would be important for the adults to stand on the children's view point so that they can accept their children for what they are.

Today, the Fami-Com plays a big role in children's play. The adults should not criticize it in vain. It is necessary to give them opportunities to know more about the world they live in by providing them with more free time and more space for playing.

The author would like to continue to think about the structure of children's culture in which the Fami-Com is regarded as one of many pleasures for children, and also about the way to make an active approach toward the educational use of the Fami-Com in which children are involved so much today.

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